

# Appendix C-10: Initial Desktop Sensitive Habitat Assessment (June 5, 2013)

---

June 5, 2013

Ms. Melissa Peterson  
Project Manager  
EDF Renewable Energy  
10 Second Street NE, Suite 400  
Minneapolis, MN 55413

Re: *Initial Desktop Sensitive Habitat Assessment*  
*Stoneray Wind Project*  
*Burns & McDonnell Project No. 62823*

Dear Ms. Peterson:

Burns & McDonnell Engineering Company, Inc. (Burns & McDonnell) is providing environmental support services for the EDF Renewable Energy (EDF), formerly enXco Development Corporation, for the proposed 105-megawatt (MW) Stoneray Wind Project, to be located in Pipestone and Murray counties in southwestern Minnesota (Project) (Figure 1). The Project will consist of up to 62 wind turbine generators (WTGs), access roads, an underground electrical collector system, and a small electrical switchyard situated within the Project area. The Project area is generally located east of Pipestone, southeast of Holland, and west of Lake Wilson, with the town of Woodstock, Minnesota within the Project area. The Project area consists of all or portions of the following Sections (Table 1), which are also depicted in Figure 2.

**Table 1. Project Location**

<b>Township</b>	<b>Range</b>	<b>Sections</b>
107N	44W	8, 15-29, 32-36
107N	43W	30, 31
106N	44W	1-17, 19-21, 23-26
106N	43W	5-8, 17-20, 29, 30

The purpose of this report is to inform EDF of potential sensitive habitats within or adjacent to the current Project area and make specific recommendations for their consideration during Project siting. The Project area encompasses approximately 29,500 acres. The original Project area was approximately 22,400 acres in size. Only a small fraction of the expanded Project area will be disturbed for construction, and an even smaller portion will host Project facilities. The expansion of the Project area will allow greater flexibility and provide for alternative WTG locations to be considered. Sensitive natural resources, such as expansive wetlands, prairie remnants, wet meadows, etc., would be avoided and all state setback requirements would be incorporated into infrastructure layout.

June 5, 2013

Page 2

This study identifies potential sensitive habitats within and adjacent to the Project area, as well as publicly-owned and managed lands that may affect the siting of Project facilities. Sensitive habitats are considered habitats identified by natural resource agencies that may be utilized by sensitive or protected species, whether designated by federal or state agencies, or where the habitat itself can be considered sensitive, rare, unique, or have biological importance.

## Methods

In an effort to assess potential sensitive habitats within the Project area, a desktop habitat assessment was performed. A survey from public roadways for the initial Project area only was also conducted (October 14, 2011) to ascertain if the data collected as part of the assessment appeared to be relatively accurate. This assessment did not include any pedestrian surveys.

The following available information was obtained and used as part of this review:

- National Wetland Inventory (NWI) data
- Minnesota Public Wetland Inventory (PWI) data
- Reinvest in Minnesota (RIM) data
- National Hydrology (NHD) data
- National Land Cover Data (NLCD)
- Minnesota Department of Natural Resources (MDNR) Natural Heritage Information System (NHIS) review
- MDNR Minnesota County Biological Survey (MCBS) data
- MDNR Correspondence
- U.S. Fish and Wildlife (USFWS) Correspondence
- National Aerial Imagery Program (NAIP) aerial photography
- USGS 7.5-minute topographic maps

Figures identifying the location of potential sensitive habitats within the Project boundary were generated using ArcGIS © software.

For purposes of this study, sensitive habitats include the following:

- Wetlands
- Streams
- Floodplains
- Wooded areas
- Grasslands
- MDNR-NHIS Rare Features (*i.e.*, terrestrial communities, calcareous fen, upland prairie, and wet meadow)
- MDNR Designated Species Priority Areas
- State-managed lands (*i.e.*, wildlife management areas, reinvestment lands, etc.)
- Special water resource protected areas (county and state)
- Publicly-owned lands (federal, state, local government owned)

June 5, 2013

Page 3

## Results

To conduct this desktop assessment available land use, habitat, and wetland data was reviewed and compared to sensitive species habitat and known species occurrences. The results of this assessment are discussed in the sections below.

### *General Setting*

The Project area extends across approximately 29,500 acres in rural southwestern Minnesota (Figure 3). The region is dominated by agricultural land uses, particularly row crop cultivation. The majority of the Project area is located between Holland and Woodstock, extending south of Woodstock and east of Hatfield, Minnesota. The Project area has gently rolling topography that is intersected by numerous county roadways that extend both east to west and north to south within and near the Project area. State roads (State Highways 30 and 23) also occur within and near the site. Population centers of Holland and Woodstock are located near the northwest and central portions of the site, respectively.

There are numerous wind energy facilities existing in and surrounding the Project area. Smaller scale wind energy facilities (*i.e.*, one to three wind turbines, typically) in the general area include:

- Boeve Windfarm
- Fey Windfarm
- JJN Wind Farm
- K-Brink Windfarm
- Kas Brothers Windfarm
- Moulton, Chandler Hills Wind Farm Phase II
- Windcurrent Farms LLC Windfarm
- Woodstock Municipal Wind

Larger wind energy facilities, which consist of eight or more wind turbines, also exist near the Project area, including:

- Breezy Bucks (I, II) Salty Dog (I, II) Roadrunner, Wind Dog, Wally's Wind Farm
- Chanarambie Wind Project
- Fenton Wind Power Project
- Lake Benton II Wind Farm
- Minnesota Windshare Wind Project
- Moraine Wind Power Project
- Ridgewind Wind Farm
- Valley View Wind Farm
- Viking Wind Project
- Westridge Wind Farm

June 5, 2013

Page 4

### ***Land Use and Features***

Based on data collected from NLCD, NWI, PWI, and MDNR, the Project area is comprised of many land cover types, as shown in Figure 3 and Table 2. This table also provides a breakdown of the various land cover types and their approximate acreage within the Project area. It is estimated that approximately 74 to 77% of the Project area is comprised of cultivated lands.

As previously noted, a windshield survey from public roadways was also conducted for the initial Project area on October 14, 2011, to ascertain if the data collected as part of the assessment appeared to be relatively accurate. Public roadways used for this survey mostly consisted of county roads within and around the Project site, including but not limited to 171<sup>st</sup> Street through 71<sup>st</sup> Street (from north to south) and 140<sup>th</sup> Avenue to 10<sup>th</sup> Avenue (east to west). State Highways 23 and 30 were also utilized. Based on the survey, the desktop data appeared relatively accurate, with a few exceptions. The NLCD data overestimates both grass and range lands, while underestimating cultivated croplands. Additionally, there appear to be more acres of herbaceous emergent wetlands than is indicated on both the NLCD and NWI (USFWS 2013b) datasets. Although difficult to accurately estimate without performing a pedestrian survey, it was estimated that 50 to 200 acres of additional wetland areas and 50 to 150 acres of additional cultivated cropland could occur in areas that were classified as grass or range lands in the initial Project area. It is possible that the initial Project area could contain 850 to 1050 acres of wetland areas and 22,425 to 22,525 acres of cropland. Other wetland areas could also exist as there are large areas of hydric soils (Figure 4) that could potentially contain wetlands, although NWI, PWI, and NLCD do not indicate the presence of wetlands. Hydric soils are one of the three characteristics of wetlands as defined by the Clean Water Act (CWA). The other two characteristics are vegetation and hydrology. The expanded Project area likely contains additional wetlands that have not been evaluated as well; however, a windshield survey has not been completed for the expanded area.

In addition to land cover and wetland data, National Hydrology data (NHD) (USGS 2011) (Figure 5) was also obtained for this assessment. This data, along with USGS topographic maps and aerials indicate numerous watercourses occur within the Project boundary, with which many of the wetland areas are associated. The most notable watercourses are the Rock River, East Branch Rock River, and North Branch Chanarambie Creek. Relatively large waterbodies (lake, reservoir, etc.) are not located within close proximity to the site. The closest large waterbodies or reservoirs appear to be Lake Wilson, approximately four miles east, and Current Lake, approximately nine miles northeast of the Project area.

**Table 2. Land Cover Estimates Within the Project Area**

Land Cover Type	Acreage
<b>NLCD</b>	
Developed, Open Space	1,409
Developed, Low Intensity	51
Developed, Medium Intensity	17
Developed, High Intensity	1
Barren Land	17
Deciduous Forest	48
Shrub/Scrub	1
Grassland/Herbaceous	3,838
Pasture/Hay	1,620
Cultivated Crops	22,379
<b>NLCD Total</b>	<b>29,381</b>
<b>Wetlands</b>	
Palustrine Emergent Wetland (PEM)*	657
Palustrine Forested/Shrub Wetland (PSS)*	7
Palustrine Pond (PUB)*	23
Riverine Wetland (R)	1
PWI Wetland*	63
RIM Wetland Areas*	14
<b>NLCD Wetland</b>	<b>62</b>
<b>Wetlands Total</b>	<b>827</b>
<b>USFWS Data</b>	
Trosky Till Plain Area 5*	5,589
<b>USFWS Data Total</b>	<b>5,589</b>
<b>MDNR Natural Communities</b>	
Marsh*	5
Wet Meadow*	37
Calcareous Fen*	3
Upland Prairie*	435
<b>MDNR Natural Communities Total</b>	<b>480</b>

\*These land cover types overlap with the NLCD. NLCD for the Project area encompasses the entire Project area.

Watercourses were not considered within the land cover estimates in Table 2; however, these features are important ecological resources and could host or support wildlife. The Project area contains approximately 96 linear miles of intermittent streams and 13 linear miles of perennial streams. Additionally, approximately 3 linear miles of other types of streams (categorized as connectors to lakes and wetlands) are also within the Project area. Federal Emergency Management Agency (FEMA)-designated floodplains (FEMA 2011) within the Project area are also associated with many of these streams (Figure 5).

June 5, 2013

Page 6

### **Federally-Listed Species Review**

According to MDNR data, the Topeka shiner (*Notropis topeka*), Dakota skipper (*Hesperia dacotae*), and poweshiek skipperling (*Oarisma poweshiek*) have been recorded within the Project area or within a one-mile buffer of the Project. However, the western prairie fringed orchid (*Platanthera praeclara*) and northern long-eared bat (*Myotis septentrionalis*) have not been recorded (MDNR 2013a, 2013b).

#### ***Topeka Shiner***

The Topeka shiner is the only federally protected species that has designated critical habitat within the Project boundary. According to the Federal Register (dated July 27, 2004), critical habitat has been designated for this species in both Pipestone and Murray counties, including reaches of four streams within the Project area (Figure 6). These reaches are associated with the following watercourses:

- Rock River (4a)
- East Branch Rock River (4aa)
- Unnamed Tributary (4bb)
- North Branch Chanarambie Creek (4x)

The MDNR data indicated that there are records of Topeka shiners occurring in streams within the Project area (MDNR 2013a, 2013b). The exact locations of the occurrences cannot be provided in this report because of limitation of uses for MDNR data. Prairie streams are not anticipated to be directly or indirectly impacted during construction and operation of the Project because construction would follow all applicable best management practices (BMPs); therefore, the potential risk of impacting this species is relatively low because this species is confined to flowing streams. The USFWS recommends avoiding these areas, but if they cannot be avoided, consultation with the USFWS must occur to comply with the federal Endangered Species Act (ESA) (16 U.S.C. 1531 *et seq.*). This species is sensitive to sedimentation and stream impacts; thus, erosion and sedimentation control BMPs must be implemented during construction. In addition, the USFWS has generated a list of recommendations for Projects that could affect Topeka shiner habitat during construction (USFWS 2008). All access roads, crane paths, and Project infrastructure would avoid impacting Topeka shiner critical habitat.

#### ***Western Prairie-Fringed Orchid***

According to MDNR species information, the western prairie fringed orchid, a federally protected species, is almost exclusively found in remnant native wet prairies and sedge meadows. The majority of the MDNR-recorded occurrences in Minnesota are located in full sunlight on moist, calcareous till or sandy soils, none of which have a significant history of cattle grazing. The risk of affecting this species is low because the majority of the Project area is cultivated agricultural land and grazed pasture. Based on its known life-history, this species usually appears in late April to early May; however, identification in the early-season or vegetative state is very difficult. The species generally flowers in early to mid-July through early August, depending on location and recent moisture and temperature constraints. There are three

---

June 5, 2013

Page 7

growing stages that may be present for an individual in a given year; immature/not flowering vegetative, mature/not flowering vegetative, and flowering vegetative. If potential suitable habitat is found to exist in the Project area and cannot be avoided, a western prairie fringed orchid presence/absence survey should be conducted.

### ***Dakota Skipper***

As a candidate species for listing under the ESA, the Dakota skipper is not currently federally protected, but it is state-protected as threatened. From MDNR species information, the Dakota skipper prefers native dry-mesic to dry prairie with mid-height clump grasses in Minnesota. The root areas of the mid-height grasses are used by the larval stages of the species and include primarily little bluestem (*Schizachyrium scoparium*), prairie dropseed (*Sporobolus heterolepis*), and side-oats grama (*Bouteloua curtipendula*). Adult life stages of the species require coneflower species (*Echinacea* spp.) for foraging, among others. The risk of affecting this species is low because the majority of the Project area is cultivated. However, Project infrastructure may require routing to avoid remnant native prairies containing these herbaceous species, to the extent practicable. If potential suitable habitat exists and cannot be avoided, a Dakota skipper presence/absence survey should be conducted or time-of-year restrictions may need to be implemented to avoid the brief flight period for the species. Based on its behaviors and known life-history, survey timeframes for this species may be limited to portions of late June and early July.

### ***Poweshiek Skipperling***

As a candidate species for listing, the poweshiek skipperling is not currently federally protected under the ESA. Additionally, it is a state special concern species and is therefore not state-protected at this time. According to MDNR, this small butterfly species occurs in wet to dry native prairie in Minnesota, but not in sand prairie. This species uses habitat similar to that required for the Dakota skipper. Similar to the Dakota skipper, the risk of affecting this species is low because the majority of the Project area is cultivated. However, Project infrastructure may need to be routed to avoid remnant native prairies containing these herbaceous species, to the extent practicable. If impacts to native prairie are possible, a presence/absence survey for this species might be warranted or time-of-year restrictions may need to be implemented to avoid the brief flight period for the species. Based on its behaviors and known life-history, survey timeframes for this species may be limited to portions of late June and early July.

### ***Northern (Long-eared) Bat***

The northern bat (also known as the northern long-eared bat and the northern myotis) was petitioned to be federally listed as threatened or endangered under the ESA (January 21, 2010). The 90-day review by the USFWS indicated that listing the northern long-eared bat may be warranted. An additional 12-month status review was initiated (June 29, 2011) for the species to determine whether listing the northern long-eared bat under the Act is warranted. At the time of reporting the USFWS had not released the findings from the status review. If the USFWS review of the species indicates that it should be listed, an additional review to designate critical

June 5, 2013

Page 8

habitat would begin and the species would become federally protected. According to the USFWS, this species has been historically known as being associated with densely wooded areas; however, more recent species information has indicated that it also inhabits open areas near riparian corridors, as long as roosting locations are available, which include loose bark, snags, buildings, or signs (76 FR 38095-38106 2011-06-26). In some counties in Minnesota, it is considered a state special concern species, but not in Pipestone, Murray, or neighboring counties. It is unlikely that this species is present in the Project area; however, if it does occur, potential adverse effects to this species would be reduced by locating wind turbines away from forest edges, wetlands, and riparian areas.

### **State-Protected Species Review**

Considering the 20 state-protected species (threatened or endangered) listed for Pipestone and Murray counties, none of these protected species have been recorded within the Project area, according to MDNR data (Table 3) (MDNR 2013a, 2013b). Six non-state-protected special concern species and two state-managed communities have been recorded within the Project area, which include the dry hill prairie (southern) and a calcareous fen. The protected special concern species included the marsh arrow-grass (*Triglochin palustris*), northern grasshopper mouse (*Onychomys leucogaster*), plains topminnow (*Fundulus sciadicus*), regal fritillary (*Speyeria idalia*), Topeka shiner, and upland sandpiper (*Bartramia longicauda*) (Table 3). The Topeka shiner is federally protected under the ESA and upland sandpiper is federally protected under the Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703).

No state-listed endangered species have been recorded within one mile of the Project boundary. The Blanding's turtle (*Emydoidea blandingii*), Dakota skipper, and hair-like beak rush (*Rhynchospora capillacea*), each designated as state-threatened species, have had a single recorded occurrences within one mile of the Project boundary. Within the list of 25 non-protected special concern species, six have been recorded within one mile of the Project boundary, some with multiple occurrences. These species include the plains topminnow, Poweshiek skipperling, prairie moonwort (*Botrychium compestre*), red three-awn (*Aristida purpurea* var. *longiseta*), regal fritillary, and Topeka shiner. One state-managed community type, calcareous fens, has also been recorded within one mile of the Project boundary (Table 4).

Information on the Blanding's turtle, a state-threatened species, and its preferred habitat is available and includes the riparian areas around prairie streams (MDNR 2013a, 2013b). This information is not included in figures for this document to comply with the usage requirements of the MDNR data. State-designated Blanding's turtle priority areas extend into multiple locations within the Project area. Time-of-year land disturbance restrictions or monitoring during construction may be required if the designated Blanding's turtle priority area would be impacted by the proposed Project. These restrictions would limit the potential impact to this species.

June 5, 2013

Page 9

**Table 3. MDNR Species and Community Types With A Managed Status  
Within the Project Boundary**

MDNR Species or Community Type	Federal Status	State Status	Number of Occurrences
Calcareous Fen Community	none	state monitored	1
Marsh arrow-grass	none	state monitored	1
Dry Hill Prairie Community (Southern)	none	state monitored	1
Northern grasshopper mouse	none	state monitored	1
Plains topminnow	none	special concern	7
Regal fritillary	none	special concern	1
Topeka shiner	endangered	special concern	3
Upland sandpiper	none	state monitored	1

Source: MDNR 2013a, USFWS 2013a

**Table 4. MDNR Species and Community Types With A Managed Status  
Within One Mile of the Project Boundary**

MDNR Species or Community Type	Federal Status	State Status	Number of Occurrences
Blanding's turtle	none	threatened	1
Calcareous Fen Community	none	state monitored	2
Dakota skipper	threatened	threatened	1
Hair-like beak-rush	none	threatened	1
Marsh arrow-grass	none	state monitored	1
Plains topminnow	none	special concern	1
Poweshiek skipperling	candidate	special concern	2
Prairie moonwort	none	special concern	1
Red three-awn	none	special concern	1
Regal fritillary	none	special concern	1
Richardson's ground squirrel	none	state monitored	1
Topeka shiner	endangered	special concern	3
Upland sandpiper	none	state monitored	2
Western harvest mouse	none	state monitored	1

Source: MDNR 2013a, USFWS 2013a

### **State-Protected Waterways and Natural Communities**

The State of Minnesota and Pipestone and Murray Counties have designated some of the larger streams in the area as Public Waters and Special Protection areas (Figure 7). Coordination with MDNR and local regulatory authorities would be required if these designated streams are proposed to be impacted. In some instances and depending upon what type of facility/structure is being proposed, setbacks and a conditional use permit may be required from the counties. As a result, Pipestone and Murray counties should be contacted to determine if any set-backs will apply to the Project.

June 5, 2013

Page 10

MDNR data indicates there have been four state-designated rare natural community types recorded in the Project area, which includes five marshes, 37 wet meadows, three calcareous fens, and 435 upland prairie segments (Figure 6 and Table 2) (MDNR 2013a, 2013b). Many of these features are located in the north or west portions of the Project area and appear associated with streams. The exact locations of some feature occurrences cannot be specifically provided in this report because of limitation uses of MDNR data.

Based on MDNR data, two state-managed properties occur within the Project area (Figure 8) (MDNR 2013a, 2013b). This property is a Conservation Reserve Enhancement Program (CREP) area located in the central part of the Project area (T107N, R44W, Section 35). The Casey Jones State Trail is also an area managed by the State of Minnesota that bisects the west and central portions of the Project area, east to west (T106, R43W, Sections 5, 6, 7, 8 and T106, R44W, Sections 1, 2, 3, 4, 5, 7, and 8). The Terrace Wildlife Management Area (WMA) is located along the western boundary of the Project area (T106N, R44W, Section 6 and T107N, R44W, Section 31). The Van Beek WMA is located along the eastern boundary of the Project area (T107N, R44W, Section 24). The Salt & Pepper WMA is located along the southern boundary of the Project area (T106N, R43W, Section 29). Additionally, MDNR data indicates there are two “terrestrial communities” within the Project area (MDNR 2013a, 2013b).

Four state-managed WMAs, four RIM conservation easements, and five CREP conservation easements are also located along the boundary or within one mile of the Project area (Figure 8). Some of these state-managed lands are known to or could potentially host sensitive species and habitats. These areas include:

- Holland WMA (T107N, R44W, Section 5)
- Terrace WMA (T106N, R44W, Section 6 and T107N, R44W, Section 31)
- Van Beek WMA (T107N, R44W, Section 24)
- Salt & Pepper WMA (T106N, R43W, Section 29)
- Wetland Preserve (RIM) (T107N, R43W, Section 18)
- Marginal Cropland (RIM) (T107N, R44W, Section 7)
- Marginal Cropland (RIM) (T107N, R44W, Section 13)
- Unspecified RIM (T106N, R43W, Section 2)
- Native Prairie Bank (CREP) (T106N, R43W, Section 32)
- Native Prairie Bank (CREP) (T106N, R43W, Section 32)
- Native Prairie Bank (CREP) (T106N, R43W, Section 33)
- Native Prairie Bank (CREP) (T106N, R43W, Section 33)
- Native Prairie Bank (CREP) (T106N, R43W, Sections 32 and 33)

The Audubon Society has designated Important Bird Areas (IBA) throughout the United States. The IBA program is focused “To identify and conserve areas that are vital to birds and other biodiversity.” Two IBAs are included in the northwest and southeast portions of the Project area (Figure 9).

June 5, 2013

Page 11

From data collected and reviewed, there does not appear to be USFWS-owned lands, Waterfowl Production Areas (WPAs), MDNR Designated Wildlife Lakes, MDNR Migratory Waterfowl Feeding and Resting Areas (MWFRA), State Game Refuges, or State Wild, Scenic, and Recreational Rivers (WSRs) within one mile of the Project area. However, there are areas within and adjacent to the Project area that are considered Minnesota Working Lands Initiative (WLI) areas and MCBS Sites of Biological Significance (Figure 8). The WLI is a public/private partnership with MDNR for wildlife development on working farms that aims at promoting general wildlife habitat. The MCBS is a survey conducted by the MDNR to obtain biological data, including areas that could be of biological significance or importance. Consultation with the MDNR should be considered in order to determine the relative importance of these areas during Project development.

## Conclusions

Although the majority of the general Project area is comprised of cultivated lands, there are some areas within the Project area that are considered potentially sensitive habitats. These sensitive habitats should be considered when developing the Project layout. These sensitive habitats include:

- Wetlands
- Streams
- Floodplains
- Wooded areas
- Grasslands
- MDNR-NHIS Rare Features
- MDNR-Designated Species Priority Area
- State-managed lands
- WLI areas and MCBS Sites of Biological Significance
- Special water resource protected areas (county and state)
- Publicly-owned lands
- Habitats identified for supporting protected species

Impacts to sensitive habitats may increase the potential for adversely impacting sensitive or protected species that may utilize these sensitive habitats, increase the likelihood of the Project needing federal, state, or local permits, and increase the coordination of Project development with pertinent natural resource agencies, such as the USFWS and MDNR. Impacts to sensitive habitats should be avoided or minimized where possible. The following measures are recommended:

- Avoid or minimize impacts to sensitive habitats by siting Project facilities on previously disturbed lands, such as cultivated ground, and utilizing directional boring techniques to install facilities beneath sensitive habitats

June 5, 2013

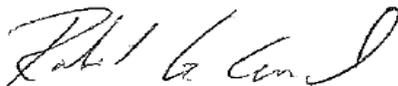
Page 12

- Conduct a field habitat assessment for sensitive habitat areas that cannot be avoided in the Projects design
- To identify specific sensitive habitats or species that could be of concern to natural resource agencies, initiate early coordination with pertinent federal, state, and local natural resource agencies

Other sensitive habitats could also exist within the Project area that were not identified as a part of this study, such as rock outcroppings, fallow fields, Conservation Reserve Program (CRP) lands, wetlands, etc., that could be considered sensitive and host sensitive species or otherwise be protected. A field assessment would identify and verify potential sensitive habitats. The field assessment should be conducted for portions of the Project layout that are not located in cultivated fields once an array has been identified. The goal of the field assessment would be to identify any sensitive habitats that could occur in the Project area that may be impacted by the Project. The results of the field assessment could be used to adjust the array and layout to further-minimize environmental impacts, regulatory reviews and permitting.

If you have any questions or require any additional information, please contact me by phone at (816) 363-7251 or by email at [reverard@burnsmcd.com](mailto:reverard@burnsmcd.com).

Sincerely,



Robert G. Everard  
Environmental Project Manager

Enclosures

cc: Andy Kim, EVS  
Justin Bailey, Burns & McDonnell

---

June 5, 2013

Page 13

## Literature Cited

Federal Emergency Management Agency (FEMA). 2011. Website: <http://msc.fema.gov/webapp/wcs/stores/servlet/CategoryDisplay?catalogId=10001&storeId=10001&categoryId=12001&langId=-1&userType=G&type=1&future=false> (Accessed from September 2011 to October 2011).

Minnesota Department of Natural Resources (MDNR). 2013a. Endangered, threatened, and special concern species. Website: <http://www.dnr.state.mn.us/rsg/definitions.html> (Accessed from August 2011 to June 2013).

Minnesota Department of Natural Resources (MDNR), Data Deli. 2013b. MDNR GIS data. Website: [http://deli.dnr.state.mn.us/data\\_search.html](http://deli.dnr.state.mn.us/data_search.html) (Accessed from September 2011 to June 2013).

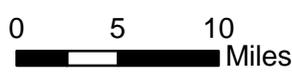
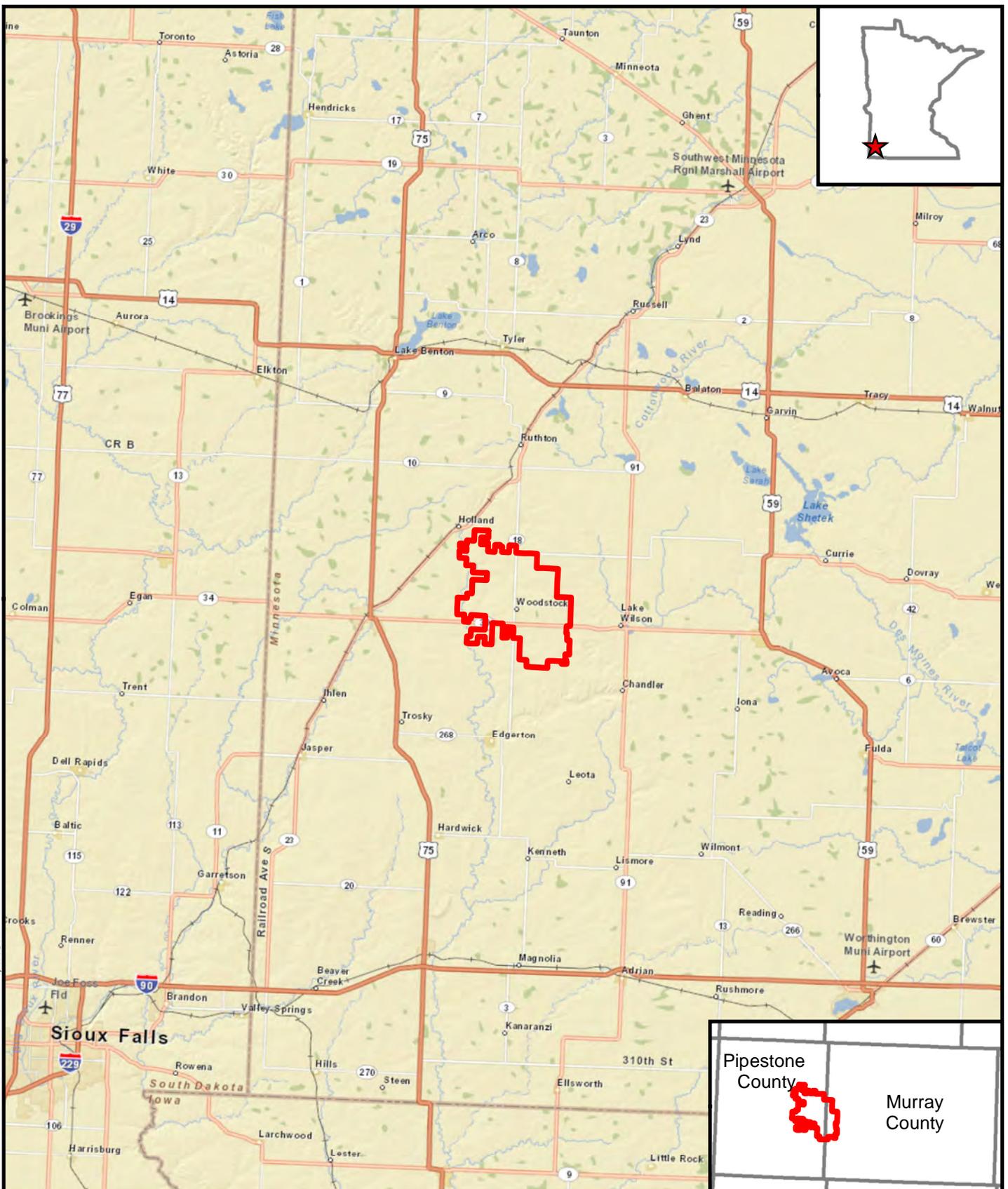
U.S. Fish and Wildlife Service (USFWS). 2013a. Threatened and endangered species list. Website: <http://www.fws.gov/midwest/Endangered/lists/minnesot-cty.html> (Accessed from August 2011 to June 2013).

U.S. Fish and Wildlife Service (USFWS). 2013b. National Wetland Inventory data. Website: <http://www.fws.gov/wetlands/Data/Mapper.html> (Accessed from September 2011 to June 2013).

U.S. Fish and Wildlife Service (USFWS). 2008. Recommendations for Projects Affecting Waters Inhabited by Topeka Shiners (*Notropis topeka*) in Minnesota. Website: <http://www.fws.gov/midwest/endangered/section7/s7process/fish/TOSHConstructionGuidelinesMN26June2008.pdf>. (Accessed November 2011).

U.S. Geological Survey (USGS). 2011. National Hydrology data. Website: <http://nhd.usgs.gov/data.html> (Accessed from November 2011 to June 2013).

## **FIGURES**



**Legend**

 Proposed Project Boundary

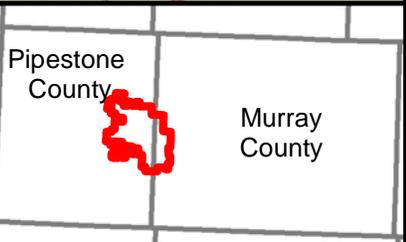
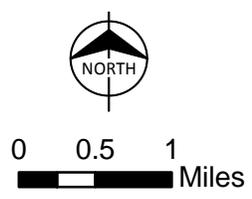
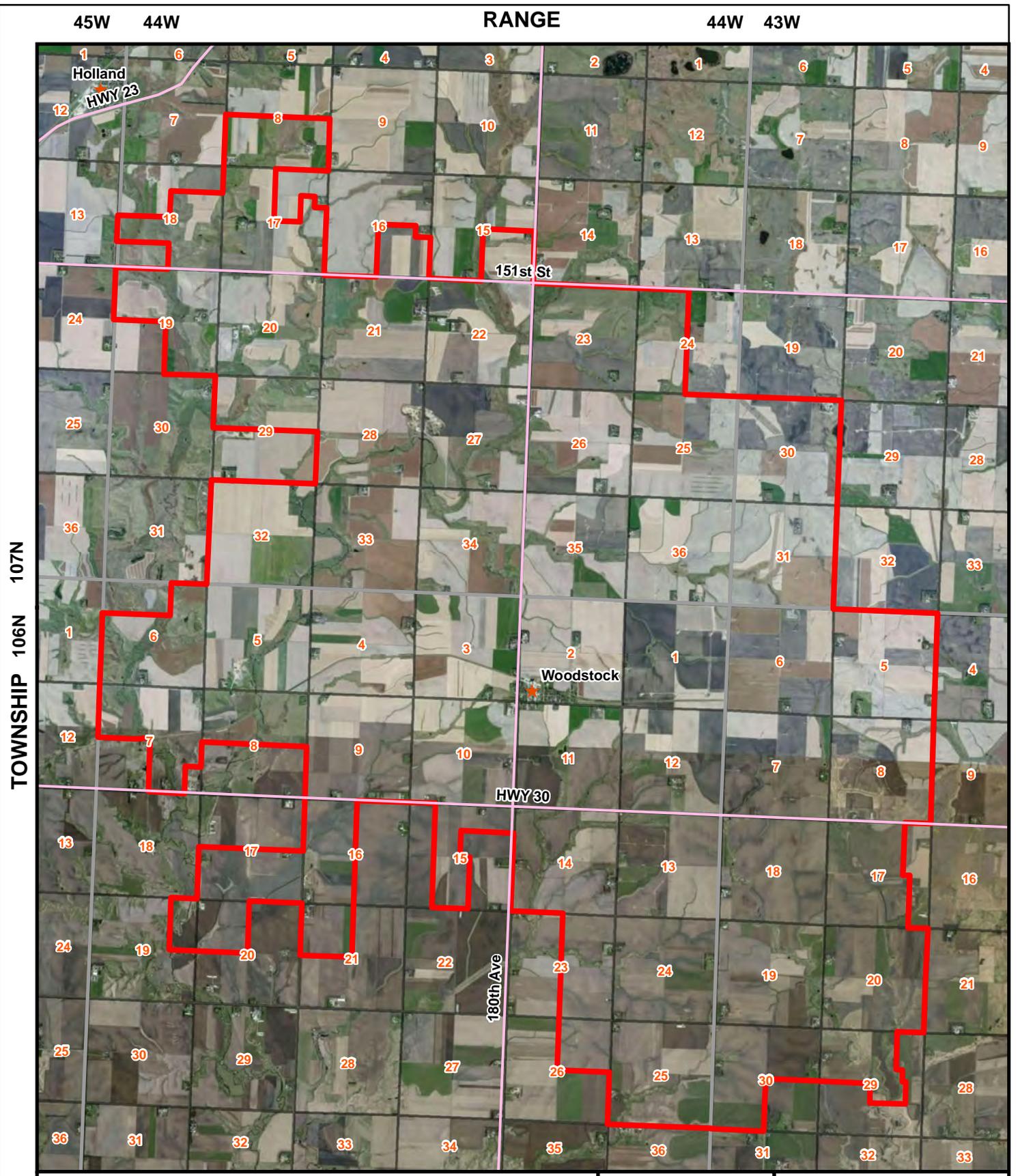


Figure 1  
General Location Map  
Stoneray Wind Project  
Murray & Pipestone  
Counties, Minnesota

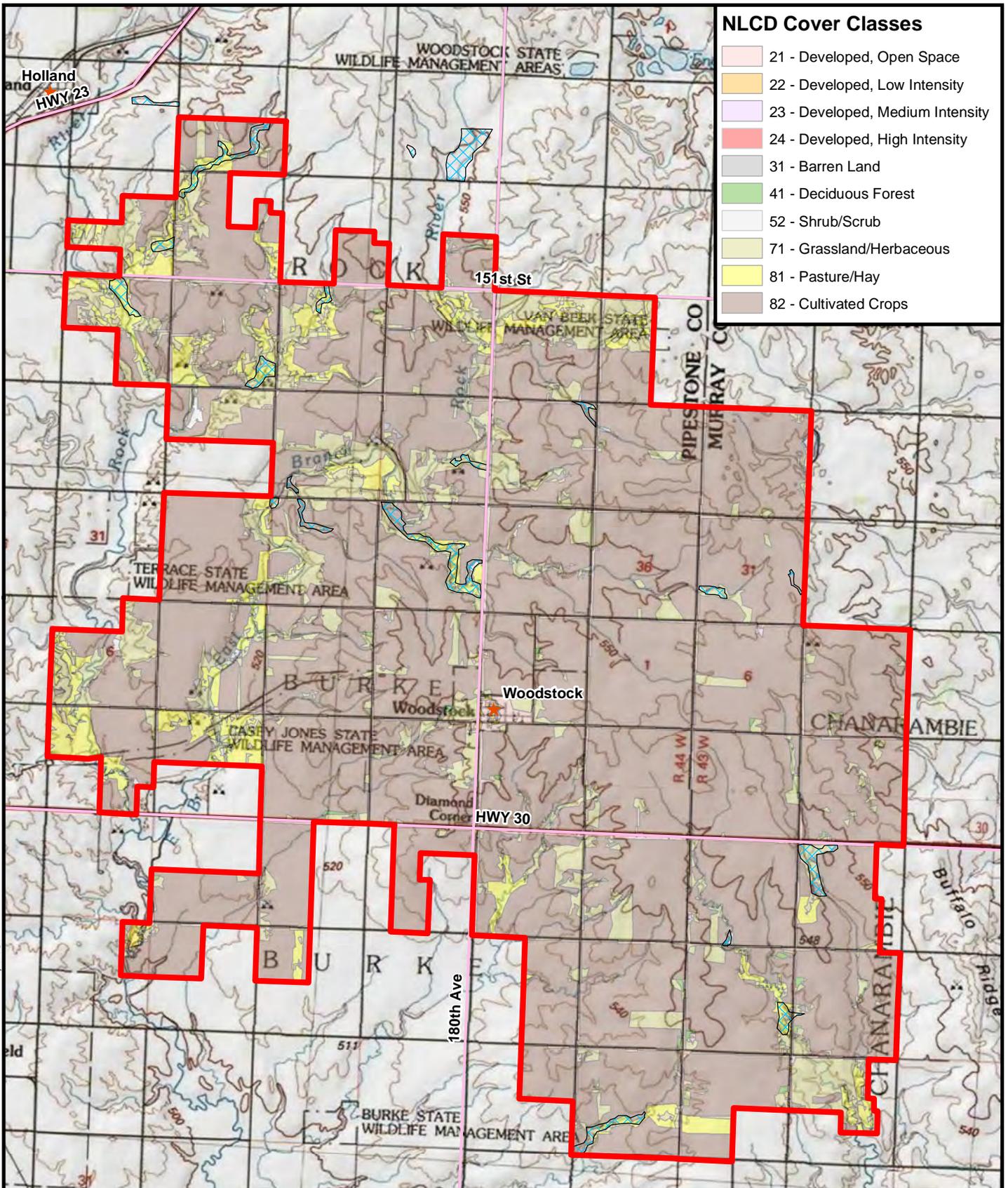
Path: R:\env\Xco\62823\GIS\DataFiles\ArcDocs\Report\_Figures\Habitat\_Figs\Fig2.mxd tbeemer 6/4/2013  
COPYRIGHT © 2013 BURNS & McDONNELL ENGINEERING COMPANY, INC.



- Legend**
-  Proposed Project Boundary
  -  Township and Range Sections
  -  Town
  -  Major Roads

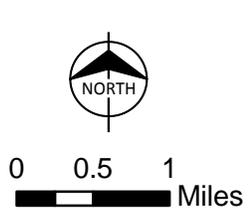


Figure 2  
Project Boundary &  
Township and  
Range Sections  
Stoneray Wind Project  
Murray & Pipestone  
Counties, Minnesota



**NLCD Cover Classes**

	21 - Developed, Open Space
	22 - Developed, Low Intensity
	23 - Developed, Medium Intensity
	24 - Developed, High Intensity
	31 - Barren Land
	41 - Deciduous Forest
	52 - Shrub/Scrub
	71 - Grassland/Herbaceous
	81 - Pasture/Hay
	82 - Cultivated Crops

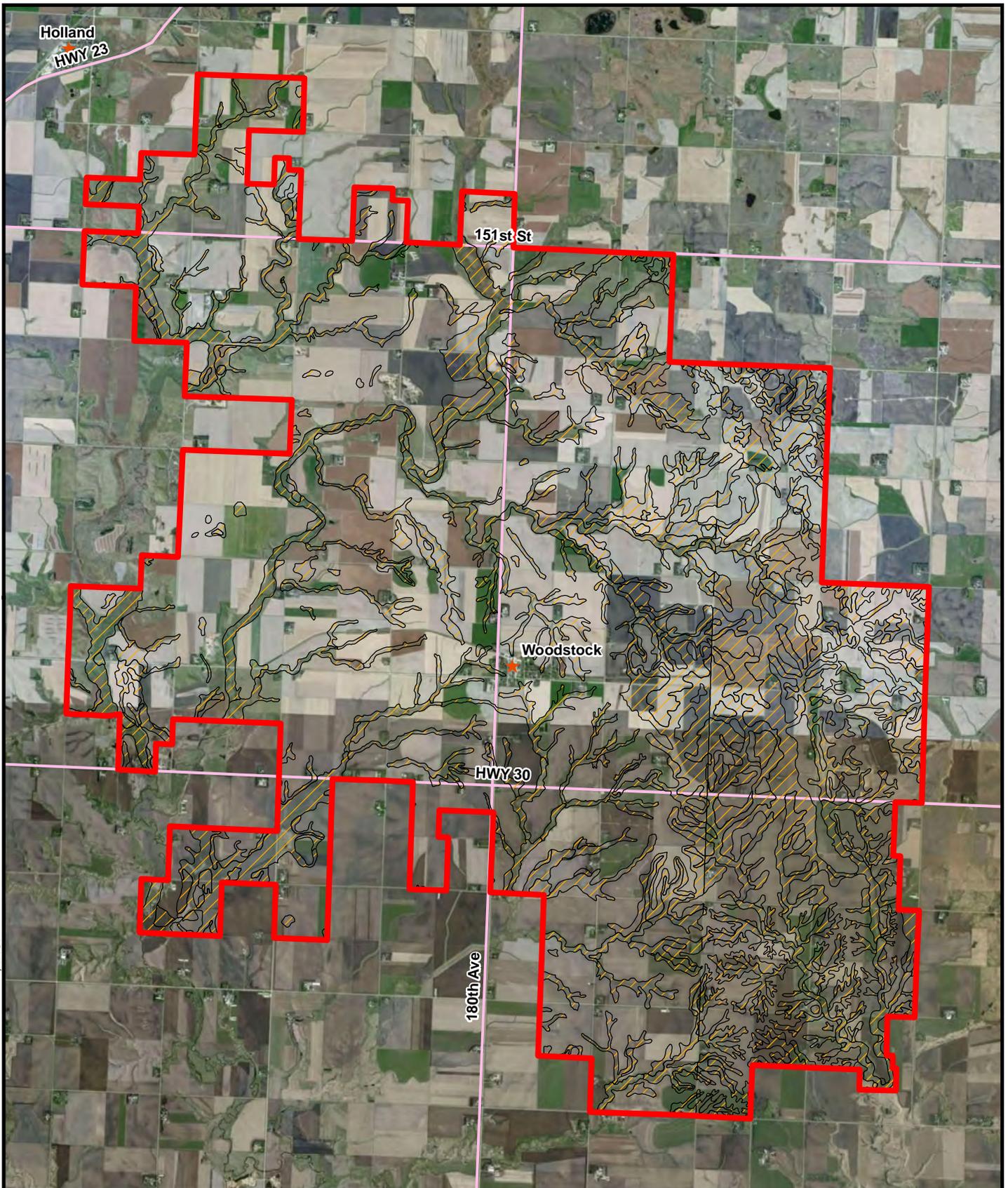


- Legend**
- Proposed Project Boundary
  - Additional Estimated Wetland Areas\*
  - Town
  - Major Roads



**Figure 3**  
 National Land  
 Cover Data Map  
 Stoneray Wind Project  
 Murray & Pipestone  
 Counties, Minnesota

Path: R:\enXco\62823\GIS\DataFiles\ArcDocs\Report\_Figures\Habitat\_Figs\Fig4.mxd tbeemer 6/4/2013  
COPYRIGHT © 2013 BURNS & McDONNELL ENGINEERING COMPANY, INC.



0 0.5 1  
Miles

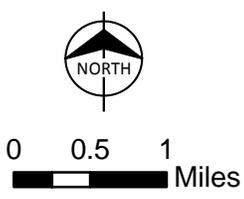
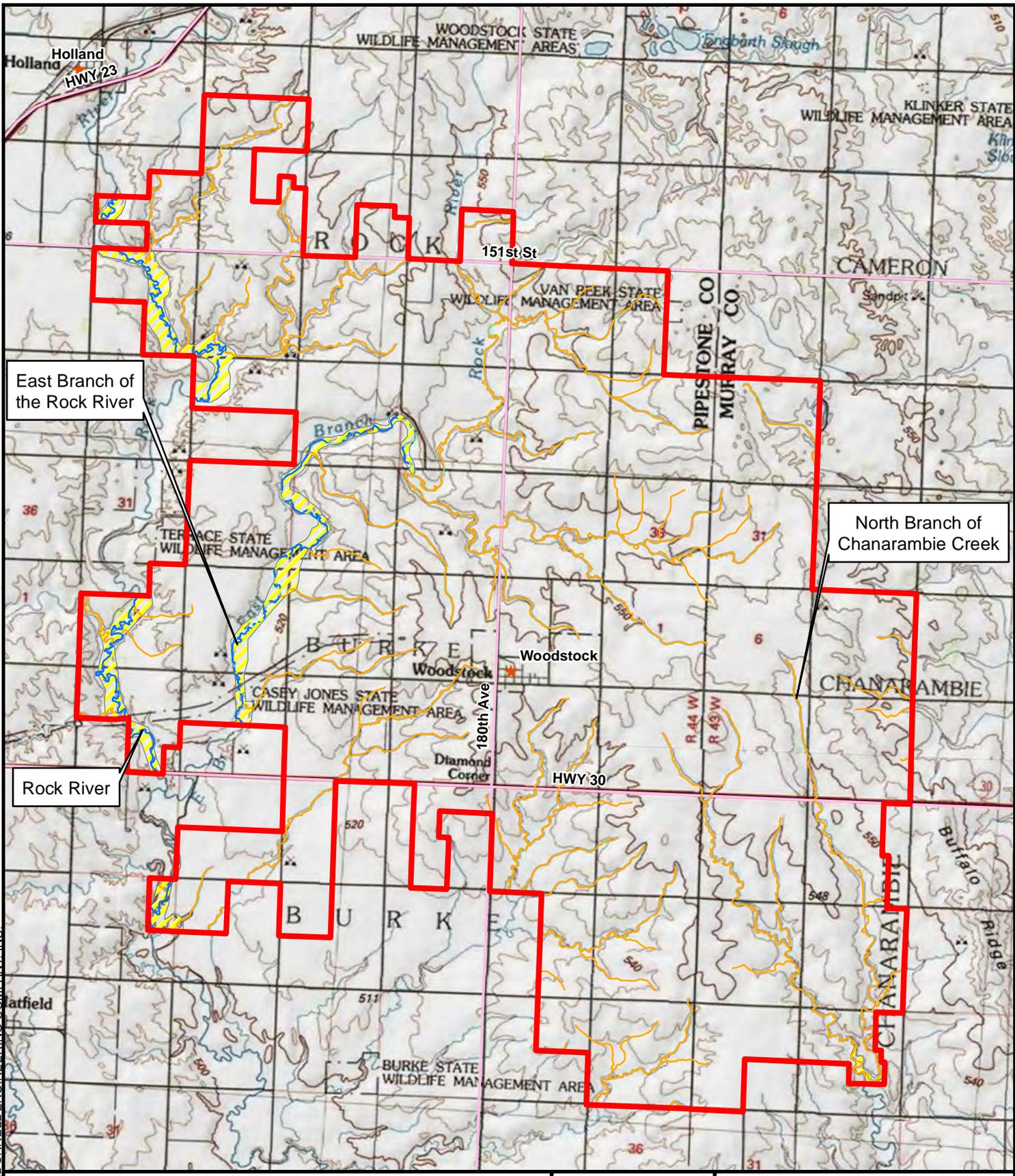
### Legend

-  Proposed Project Boundary
-  Hydric Soil
-  Town
-  Major Roads



Figure 4  
Hydric Soils  
Stoneray Wind Farm Project  
Murray & Pipestone  
Counties, Minnesota

Path: R:\env\Xco\62823\GIS\DataFiles\ArcDocs\Report\_Figures\Habitat\_Figs\Fig5.mxd tbeemer 6/4/2013  
 COPYRIGHT © 2013 BURNS & McDONNELL ENGINEERING COMPANY, INC.

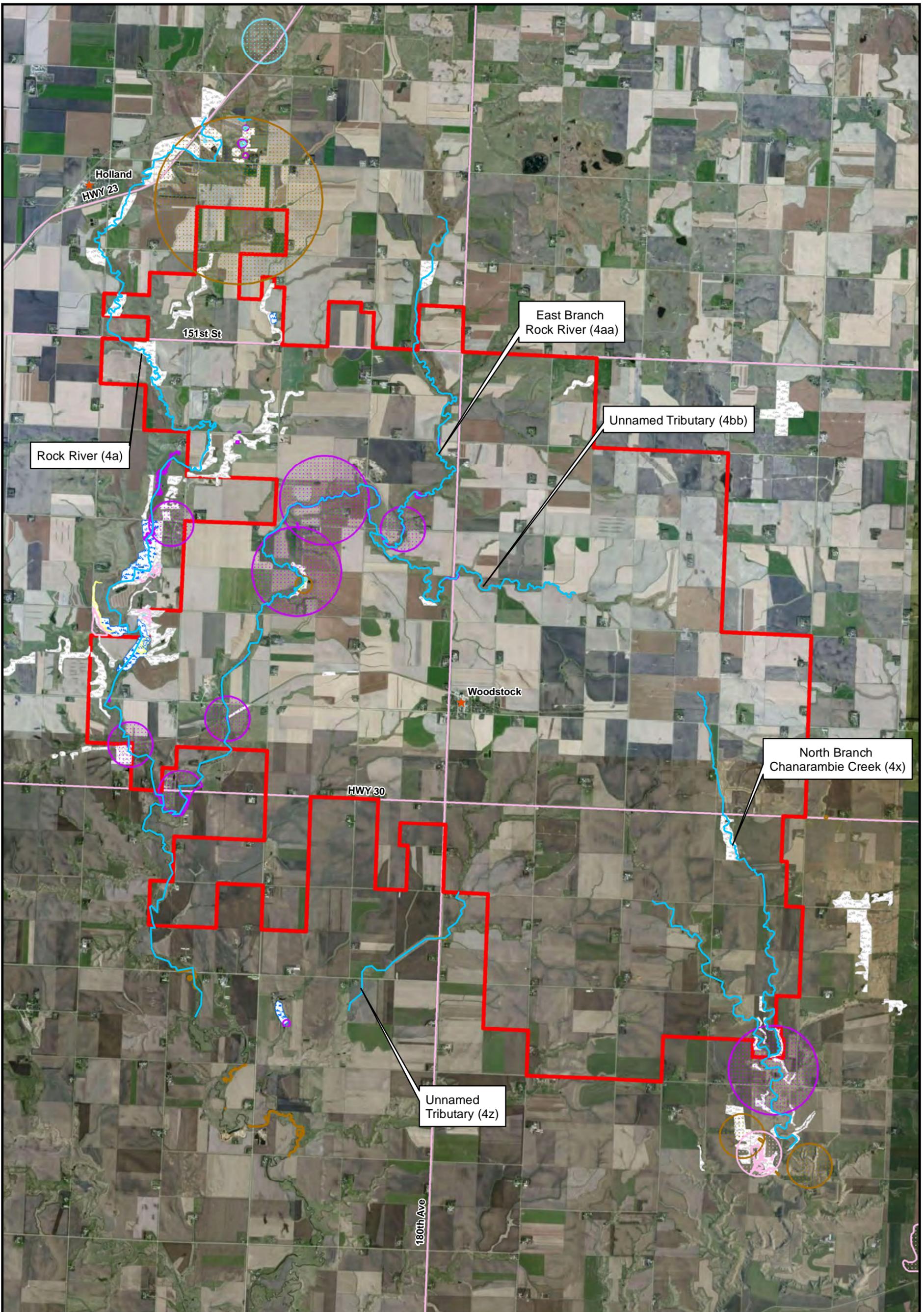


Legend		Stream Type	
	Proposed Project Boundary		Perennial
	FEMA Floodplain		Intermittent
	Major Roads		Other
	Town		



Figure 5  
 National Hydrology Dataset  
 & FEMA Floodplain  
 Stoneray Wind Project  
 Murray & Pipestone  
 Counties, Minnesota

Path: \\ESPSRV\Data\Projects\en\Xco\62823\GIS\DataFiles\ArcDocs\Report\_Figures\Habitat\_Figs\Fig6.mxd tbeemer 6/5/2013  
 COPYRIGHT © 2013 BURNS & McDONNELL ENGINEERING COMPANY, INC.



0 0.5 1  
 Miles

**Legend**

- Proposed Project Boundary
- ★ Town
- Critical Habitat for Topeka Shiner
- Major Roads

**Natural Communities**

- Marsh
- Calcareous Fen
- Upland Prairie
- Wet Meadow

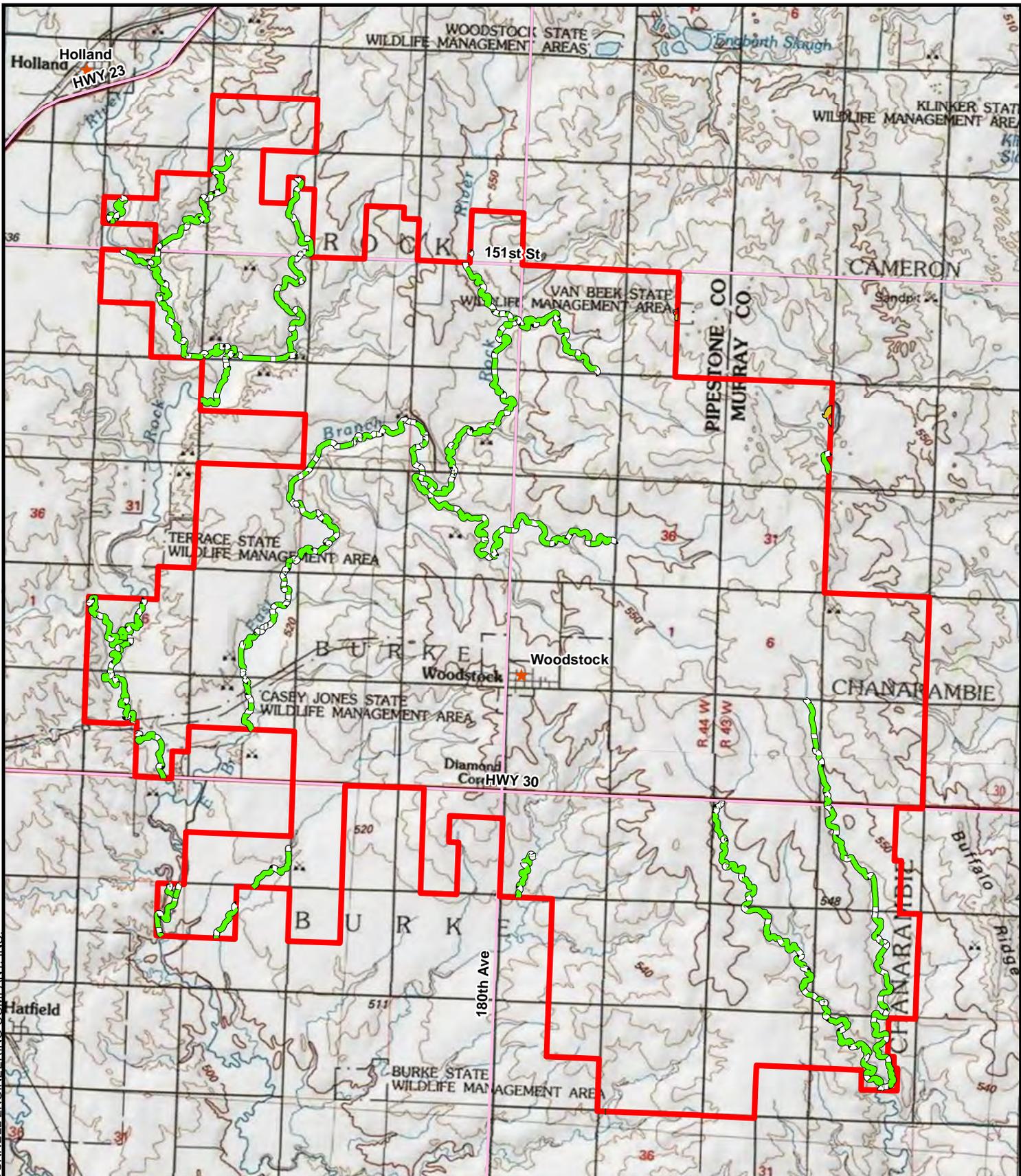
**Rare Species**

- Invertebrate Animal
- Vertebrate Animal
- Vascular Plant
- Community



Figure 6  
 Rare Species & Natural Communities  
 Stoneray Wind Project  
 Murray & Pipestone Counties, Minnesota

Path: R:\env\62823\GIS\DataFiles\ArcDocs\Report\_Figures\Habitat\_Figs\Fig7.mxd tbeemer 6/4/2013  
 COPYRIGHT © 2013 BURNS & McDONNELL ENGINEERING COMPANY, INC.



0 0.5 1  
 Miles

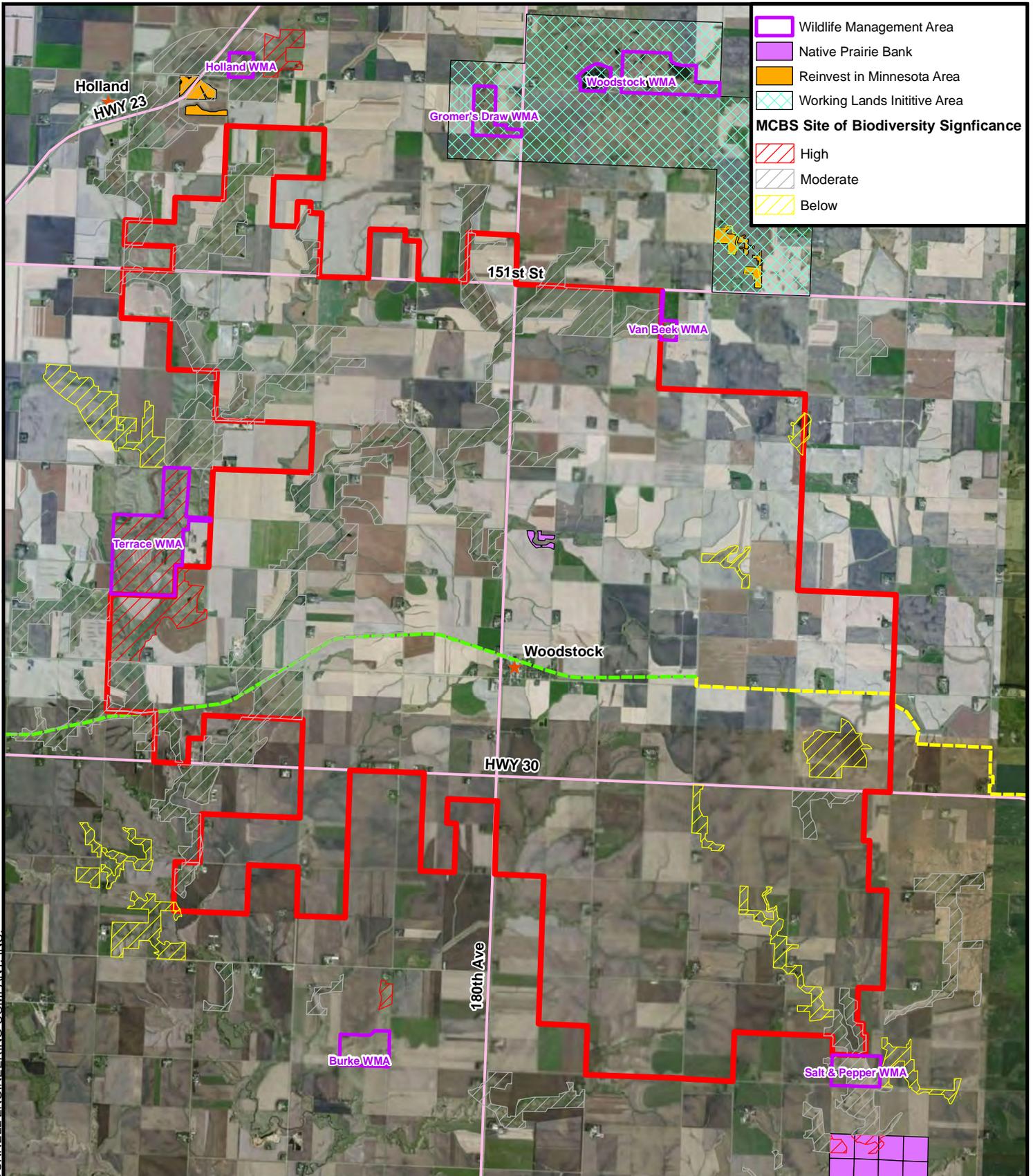
**Legend**

- Proposed Project Boundary
- PWI - Protected Wetland
- PWI - Protected Waterway
- Major Roads
- ★ Town



Figure 7  
 PWI Waterways  
 Stoneray Wind Project  
 Murray & Pipestone  
 Counties, Minnesota

Path: R:\env\Xco\62823\GIS\DataFiles\ArcDocs\Report\_Figures\Habitat\_Figs\Fig8.mxd tbeemer 6/4/2013  
 COPYRIGHT © 2013 BURNS & McDONNELL ENGINEERING COMPANY, INC.



Wildlife Management Area  
 Native Prairie Bank  
 Reinvest in Minnesota Area  
 Working Lands Initiative Area  
**MCBS Site of Biodiversity Significance**  
 High  
 Moderate  
 Below



0 0.5 1  
 Miles

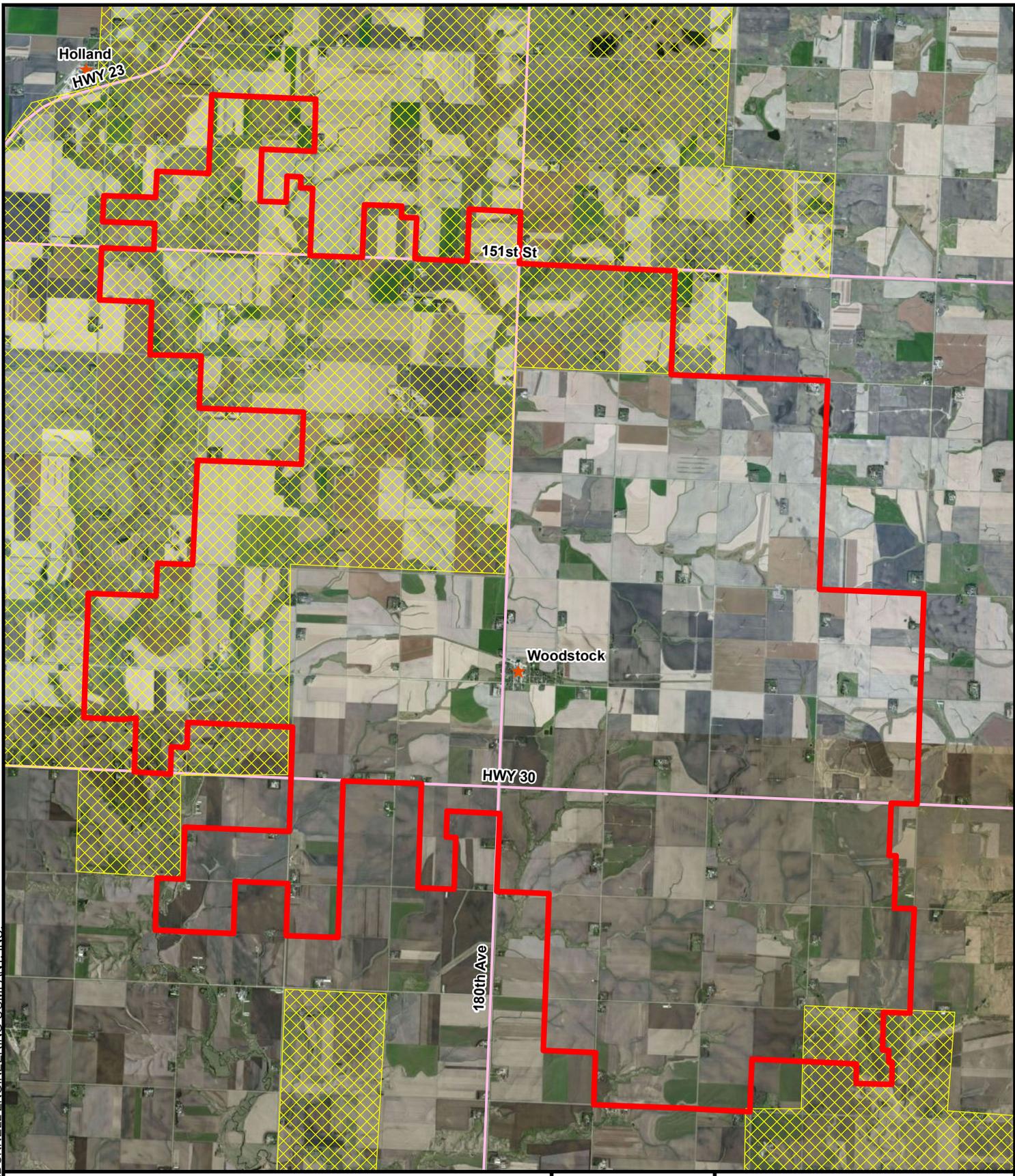
**Legend**

- Proposed Project Boundary
- ★ Town
- Casey Jones State Trail
- Casey Jones State Trail Potential Expansion
- Major Roads



**Figure 8**  
 Minnesota Public Lands/  
 Easements, Working Lands  
 Initiative, Sites of Biological  
 Significance & State Trail Map  
 Stoneray Wind Project  
 Murray & Pipestone  
 Counties, Minnesota

Path: \\espsrv\data\Projects\enXcol62823\GIS\DataFiles\ArcDocs\Report\_Figures\Habitat\_Figs\Fig9.mxd tbeemer 6/5/2013  
COPYRIGHT © 2013 BURNS & McDONNELL ENGINEERING COMPANY, INC.



0 0.5 1 Miles

**Legend**

-  Proposed Project Boundary
-  Audubon Society Important Bird Area
-  Town
-  Major Roads



Figure 9  
Important Bird Areas  
Stoneray Wind Project  
Murray & Pipestone  
Counties, Minnesota